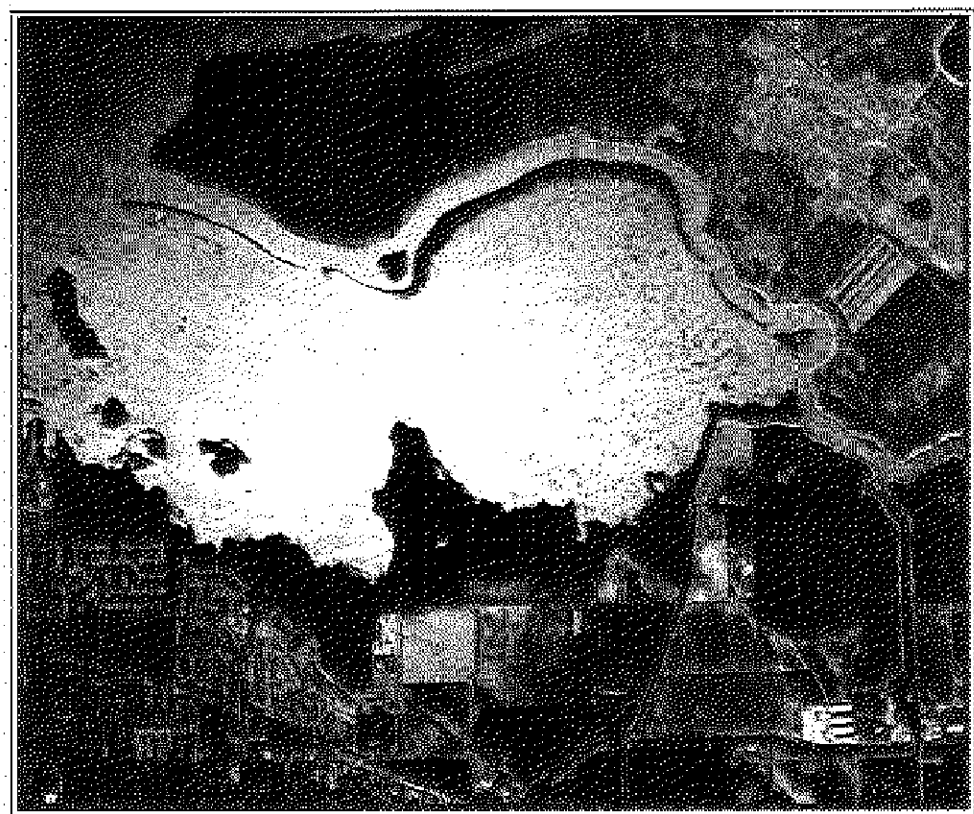


THE

DELTA SCIENCE CENTER

A T B I G B R E A K



A UNIQUE OPPORTUNITY FOR
RESTORATION, RESEARCH & EDUCATION

APRIL 1999 • ECOSYSTEM RESTORATION PROJECTS AND
PROGRAMS • CALFED BAY-DELTA PROGRAM

FLOODPLAIN MANAGEMENT AND HABITAT RESTORATION

PSP Cover Sheet

Proposal Title: A Unique Opportunity for Restoration, Research and Education
 Applicant Name: The Delta Science Center at Big Break
 Mailing Address: 86 Orchard Estates Drive, Walnut Creek, CA 94598
 Telephone: 925-947-1473
 Fax: 925-947-1473
 Email: DSCatBB@aol.com

Amount of funding requested: \$ 536,313 for 1.2 years

Indicate the Topic for which you are applying (check only one box).

- | | |
|---|---|
| <input type="checkbox"/> Fish Passage/Fish Screens | <input type="checkbox"/> Introduced Species |
| <input checked="" type="checkbox"/> Habitat Restoration | <input type="checkbox"/> Fish Management/Hatchery |
| <input type="checkbox"/> Local Watershed Stewardship | <input type="checkbox"/> Environmental Education |
| <input type="checkbox"/> Water Quality | |

Does the proposal address a specified Focused Action? ☒ yes ☐ no

What county or counties is the project located in? Contra Costa

Indicate the geographic area of your proposal (check only one box):

- | | |
|--|---|
| <input type="checkbox"/> Sacramento River Mainstem | <input type="checkbox"/> East Side Trib: |
| <input type="checkbox"/> Sacramento Trib: | <input type="checkbox"/> Suisun Marsh and Bay |
| <input type="checkbox"/> San Joaquin River Mainstem | <input type="checkbox"/> North Bay/South Bay: |
| <input type="checkbox"/> San Joaquin Trib: | <input type="checkbox"/> Landscape (entire Bay-Delta watershed) |
| <input checked="" type="checkbox"/> Delta: <u>Big Break on the San Joaquin</u> | <input type="checkbox"/> Other: |

Indicate the primary species which the proposal addresses (check all that apply):

- | | |
|---|---|
| <input checked="" type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | <input checked="" type="checkbox"/> Spring-run chinook salmon |
| <input checked="" type="checkbox"/> Winter-run chinook salmon | <input checked="" type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input checked="" type="checkbox"/> Longfin smelt |
| <input checked="" type="checkbox"/> Delta smelt | <input checked="" type="checkbox"/> Steelhead trout |
| <input checked="" type="checkbox"/> Splittail | <input checked="" type="checkbox"/> Striped bass |
| <input checked="" type="checkbox"/> Green sturgeon | <input checked="" type="checkbox"/> All chinook species |
| <input checked="" type="checkbox"/> Migratory birds | <input checked="" type="checkbox"/> All anadromous salmonids |
| <input checked="" type="checkbox"/> Other: <u>black rail</u> | |

Specify the ERP strategic objective and target (s) that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II:

Natural Flood Plains and Flood Processes, pg. 83; Tidal Perennial Aquatic Habitat, pg. 114; Delta Sloughs, pg. 120; Splittail, pg. 207; All Runs of Chinook Salmon, pg. 220

Indicate the type of applicant (check only one box):

- | | |
|--|---|
| <input type="checkbox"/> State agency | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit |
| <input type="checkbox"/> Local government/district | <input type="checkbox"/> Private party |
| <input type="checkbox"/> University | <input checked="" type="checkbox"/> Other: <u>Non-profit/special district</u> |

Indicate the type of project (check only one box):

- | | |
|--|---|
| <input checked="" type="checkbox"/> Planning | <input type="checkbox"/> Implementation |
| <input type="checkbox"/> Monitoring | <input type="checkbox"/> Education |
| <input type="checkbox"/> Research | |

By signing below, the applicant declares the following:

- 1.) The truthfulness of all representations in their proposal;
- 2.) The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- 3.) The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Stephen Barbata

Printed name of applicant

Stephen Barbata

Signature of applicant

TITLE PAGE

- A. A UNIQUE OPPORTUNITY FOR RESTORATION, RESEARCH AND EDUCATION

- B. THE DELTA SCIENCE CENTER at Big Break
Stephen Barbata, Executive Director
86 Orchard Estates Drive
Walnut Creek, CA 94598
Phone and fax: 925-947-1473

- C. Participants are:

PROJECT OVERSIGHT

Stephen Barbata
Executive Director
The Delta Science Center
86 Orchard Estates Drive
Walnut Creek, CA 94598

&

Bob Doyle
Assistant General Manager
East Bay Regional Park District
P.O. Box 5381
Oakland, CA 94605

TECHNICAL PARTNERS

Gregory A. Thomas: Technical Management and Planning
Natural Heritage Institute
114 Sansome Street, Suite 1200
San Francisco, CA 94702

Phillip Williams: Physical Restoration and Research Specialist
Phillip Williams and Associates
770 Tamalpais, Suite 401
Corte Madera, CA 94925

William S. Wells: Education Specialist
William S. Wells Design
506 Redhill Avenue
San Anselmo, CA 94960

Charles Hanson, Ph.D.: Biological Restoration and Research Specialist
Hanson Environmental Inc.
132 Cottage Lane
Walnut Creek, CA 94598

Local students and community members

- D. Nonprofit public benefit corporation
The East Bay Regional Park District is the fiscal agent for the DSC.
- E. Tax identification number: 23-7011877

EXECUTIVE SUMMARY

A UNIQUE OPPORTUNITY FOR BIG BREAK RESTORATION, EDUCATION AND RESEARCH THE DELTA SCIENCE CENTER AND EAST BAY REGIONAL PARK DISTRICT

This proposal develops a long-term stewardship role for Big Break in the western Delta. The project is to 1) acquire 668 acres of protected shallow water habitat; 2) design the removal of an existing flood-control channel on lower Marsh Creek at Big Break; 3) develop a restoration and stewardship plan for approximately 2,000 acres of the Marsh Creek watershed and Big Break; and 4) prepare a public access and education plan showcasing the Bay-Delta estuary and CALFED's efforts to restore it.

The project will increase Big Break Regional Shoreline to 1,758 acres; reclaim a minimum of 2,700 lineal feet for restored flood plain; design hundreds of acres as new emergent islands and peninsulas to overcome subsided conditions for new tule marsh colonization; promote non-structural flood control along the entire southern shore of Big Break; create a biological baseline on 2,000 acres of shallow water habitat, tidal wetlands, seasonal and emergent wetlands, and riparian corridors; and create new emergent wetlands and riparian corridors; and create new emergent wetlands with reclaimed water. The location is Oakley in east Contra Costa County.

The project advances a broad range of CALFED objectives including the restoration of natural flood plain and flood processes; enhancement of the Bay-Delta aquatic foodweb; restoration of tidal perennial aquatic habitat; enhancement of nontidal perennial aquatic habitat and Delta sloughs; restoration of seasonal wetlands, riparian and riverine aquatic habitats; and the restoration of oak woodland, inland dune scrub and perennial grassland habitat.

The project benefits many CALFED priority species including all runs of salmon, delta smelt, splittail, longfin smelt, steelhead and green sturgeon. The project will also benefit ERP target species including western pond turtle, grant garter snake, legless lizard, shorebirds and wading birds, waterfowl, neotropical migratory bird guilds and upland game species.

Project applicants are prepared to contribute a 60 percent cost share, including \$557,000 by the East Bay Regional Park District for acquisition of the Lauritzen property and \$75,000 by The Delta Science Center for the education component of this project. The total project cost is \$1,280,850. The total after the cost share is a CALFED request for \$536,313.

The project has no known adverse or third party impacts and is locally supported at many levels in government, business, education, agriculture and among environmental groups. Our efforts in Big Break and the Marsh Creek watershed are being closely coordinated with the cities of Oakley and Brentwood, Contra Costa County and Contra Costa Water District.

The applicants include Steve Barbata, Executive Director of The Delta Science Center. He previously served as director of the regionally acclaimed Lindsay Wildlife Museum and has 25 years of experience in the design, building and funding of educational institutions. Bob Doyle has

24 years' experience with the East Bay Regional park District and has served for the past 13 years as Assistant General Manager for Advanced Planning and Land Acquisition. *Phillip Williams, Ph.D., P.E., of Phillip Williams and Associates* has over 20 years' experience in tidal marsh and riparian restoration planning and analysis. *William S. Wells* has over 20 years' experience in the planning and design of educational institutions, with educational degrees in journalism and environmental design. *Dr. Charles Hanson* has served on the USFWS Native Fish Recovery Team and contributed directly to a number of fishery protection and enhancement programs involving USFWS, NMFS, USEPA, USBR, CDFandG and other agencies. *Greg Thomas, Dave Fullerton, John Cain* and *Mark Wolfe* will all participate in project planning, and NHI board members *Luna Leopold, Ph.D.* and *Peter Moyle, Ph.D.*, will provide advice on project direction. *John Cain, M.L.A.*, who will participate in day-to-day management of the project, has a graduate degree in environmental planning and eight years of experience in aquatic habitat restoration, planning and research.

PROJECT DESCRIPTION

Proposed Scope of Work

The Delta Science Center at Big Break, in partnership with the East Bay Regional Park District and others, is developing a long-term stewardship role for Big Break in the western Delta. The goal of this project is to: 1) acquire 668 acres of protected shallow water habitat, tidal wetlands and riparian corridors to increase Big Break Regional Shoreline to 1,758 acres; 2) initiate the restoration of lower Marsh Creek by engineering an existing trapezoidal flood-control channel for a levee setback along the creek's confluence with Big Break, restoring the natural flood plain while creating excellent habitat for native fish and other priority species; 3) author a Big Break stewardship plan that includes a resource inventory of Big Break, select hydrologic and geomorphic mapping, a restoration plan for creating emergent islands and expanding existing tidal marsh habitat, and an adaptive management research program for restoring shallow water habitat; and 4) design and develop a public access and education plan of the unprecedented opportunities to create a demonstration project showcasing the Bay-Delta estuary and CALFED's efforts to restore it—requires coordination with all proposed projects to protect the resource while cultivating public participation.

This proposal is for funding to complete Phase I of a long-term restoration, education, and research program at Big Break. Phase I entails the acquisition of the 668-acre Lauritzen property and the development of a restoration and education plan for approximately 2,000 acres of the Marsh Creek watershed and Big Break, including reclaimed portions of Dutch Slough and San Joaquin River areas. Phase II will focus on permitting, compliance, implementation and monitoring.

Phase I

<u>Task</u>	<u>Deliverable</u>	<u>Schedule</u>
1. Complete Option on Lauritzen Property	668 acres	9/01 - 10/01 1999
2. Compile and Review Existing Info on Big Break	report	9/01 - 9/30 1999
3. Prepare Big Break Stewardship Plan	final plan	9/01/99 - 10/01 2000
4. Draft Access & Education Plan	draft plan	10/01 - 5/01 2000
5. Finalize Access & Education Plan	final plan	5/01 - 11/01 2000
6. Draft Marsh Creek Restoration Plan	draft plan	10/01 - 12/01 1999
7. Finalize Marsh Creek Restoration Plan	final plan	1/01 - 2/01 2000
8. Permits & Compliance for Restoration	permit plan	1/01 - 6/01 2000

The tasks represent an integrated plan for the long-term stewardship of Big Break. If only a portion of the project could be funded, we would suggest that you consider the following:

1. The acquisition of the 668 acre Lauritzen property is a special opportunity to preserve one of the few shallow open water areas remaining in the western Delta. The total acquisition cost is \$757,400. A \$200,000 grant from the Habitat Conservation Fund has lowered the balance to \$557,400. If CALFED would match the Habitat Conservation Fund (\$200,000), the East Bay Regional Park District has sufficient Measure AA Bond Proceeds to pay the balance of \$357,400. Acquisition will directly benefit several primary species, including all runs of salmon, delta smelt, splittail and longfin smelt. Habitat for many other species, including the river lamprey, Sacramento perch, migratory birds and California black rail, also will be protected. Many urban development schemes have been proposed for the Lauritzen property, but the diligence of the park district and others has built the cause for permanent preservation now.

2. The flood control levee setback proposed on Marsh Creek is also a very special opportunity to create a delta within the Delta. We have worked steadfastly with the Ironhouse Sanitary District (letter attached) to gain their approval to flood a minimum of 23 acres of their land on the west side of lower Marsh Creek from the creek's intersection with the Contra Costa Canal to its confluence with Big Break. The confluence itself is rich in biodiversity, a diversity that immediately terminates where the flood control channel begins. We can regain a minimum of 2,700 feet of restored flood plain, creating excellent habitat of tidal marsh and sloughs, shallow water, flood plain, riparian forest, seasonal wetlands, and oak woodland. The Ironhouse Sanitary District cost share for 23+ acres is a minimum of \$46,000 and is further supported by Ironhouse's willingness to donate additional abandoned grazing lands to the creation of new reclaimed water wetlands adjacent to the project site. Mount Diablo Audubon Society cites the existing reclaimed water wetlands of Ironhouse as the premier bird watching site in Contra Costa. To develop this levee setback program, guided by Phil Williams and Associates, we have budgeted approximately \$165,000 through concept and design development. The actual CALFED request will be offset by \$85,000 in cost shares by the applicant.

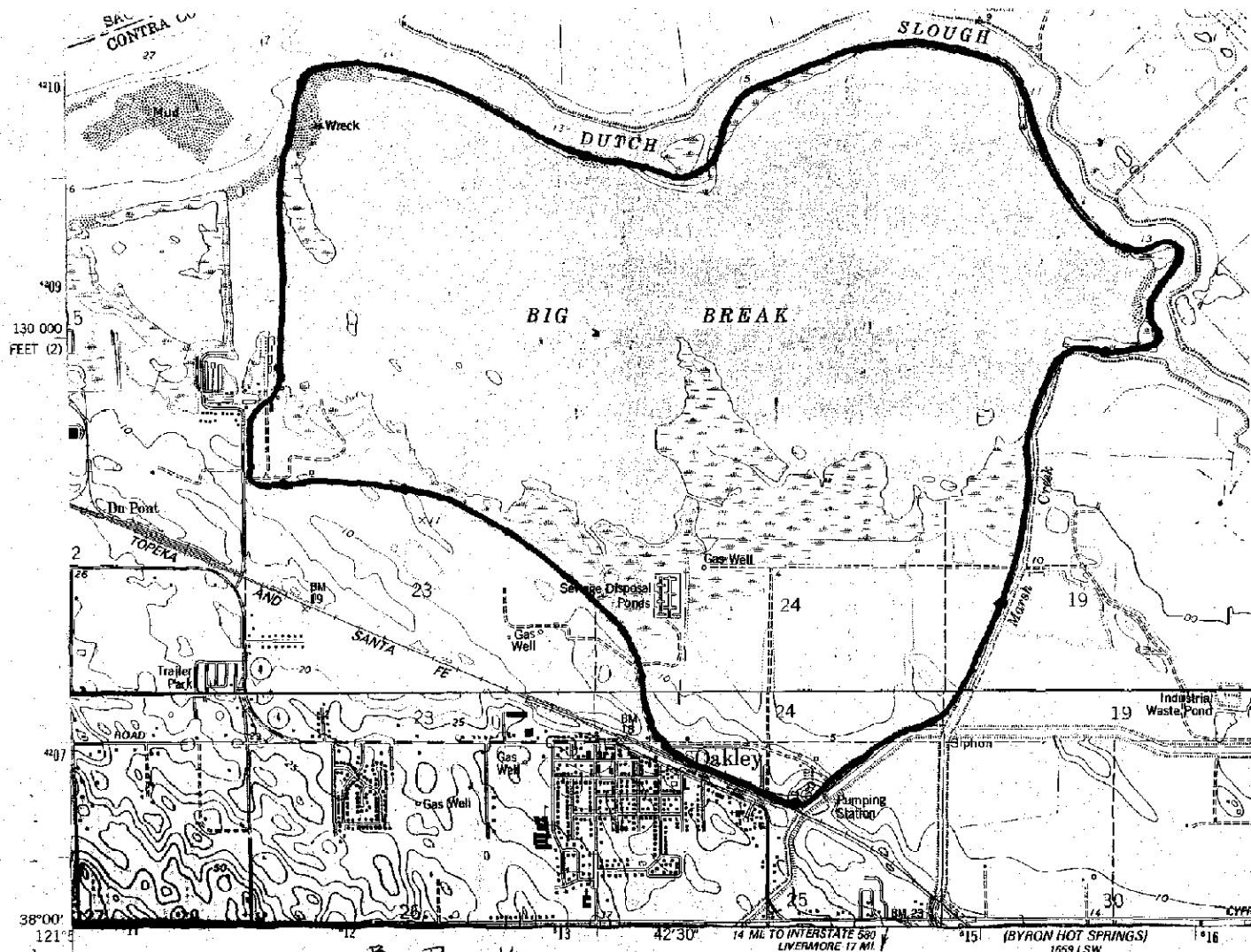
3. The Big Break Stewardship Plan is vital to the long-term management and restoration of Big Break. Anecdotal information abounds, including preliminary GIS work and periodic wildlife surveys by the East Bay Regional Park District (provided to the Natural Diversity Base), work on the fisheries by Charles Hanson of Hanson Environmental Inc., a Marsh Creek Monitoring Program by Christine Hagelin, professor of biology at Los Medanos College, and Chris Kitting, a Delta specialist at California State University, Hayward. But a comprehensive study, collation and recommendation plan is a mandatory baseline for long-term stewardship. While the sloughs and tule marshes are naturally accreting and gradually expanding into the open water areas, many disturbances continue to challenge the resource, e.g. point and non-point source pollution from industry, ag, urban areas and sewage districts, including Oakley and Brentwood (fastest growing city in California); catch and release black bass derbies; marina operations and more. A comprehensive, minimum one-year resource study with significant in-kind Big Break support has been budgeted at \$193,000, not including a \$20,000 cost share.

4. The public access and education plan is a priority for The Delta Science Center. The nonprofit consortium is dedicated to Delta restoration and research supported by meaningful public participation. The consortium includes diverse Delta members in education, government, business and agriculture: Contra Costa County, East Bay Regional Park District, Contra Costa Community College District, Emerson Dairy, Pacific Gas and Electric, Cal Sate Hayward, Contra Costa Water District, the Delta Chapter of the Sierra Club and Mt. Diablo Audubon. Their goal includes the development of an education pier, and a public education facility on the western upland of the Lauritzen property, connected by park district trails (EBRPD costs) from the Antioch Shoreline, to Big Break Marina, to the Lauritzen property, to Ironhouse and Marsh Creek, with ultimate connections to Mt. Diablo State park, the Bay Shore Trail and Los Vaqueros Watershed, linking all of east Contra Costa to a Delta watershed theme. We recognize that education and access have not historically been high CALFED priorities, but trust that you will agree that some funding to integrate a physical education plan with Big Break restoration, acquisition and research protects the resource and gains public support for all ecosystem restoration projects and programs. We have budgeted this plan under the guidance of William S. Wells Design for a CALFED total of approximately \$75,000, matched by \$75,000 in Delta Science Center funds.

Project management is the strong suit of this proposal. The East Bay Regional park District has received some 335 competitive grant awards totaling more than \$68,000,000 in successfully completed acquisition and development projects. Stephen Barbata, Executive Director of The Delta Science Center, has 25 years' experience as a project manager/director developing permanent projects for institutions such as the California Academy of Sciences, Oakland Museum, Lindsay Wildlife Museum, Coyote Point Museum and Telluride Land Trust. The Natural Heritage Institute and Phil Williams Associates will also provide project management, and both are considered experts in their disciplines of natural resources law, management, and restoration, including the completion of over 400 wetland restoration plans. Ultimate project management and responsibility will be assumed by The Delta Science Center and a most capable cast.

The location of the site at the interface of the urban Bay Area and the western Delta offers unparalleled access to the "natural Delta." This east Contra Costa County site is at the intersection of the major state highways that traverse the Delta, Highways 4 and 12, and is dissected by the East Bay Regional Park District's regional bicycle and foot trail. The trail will allow the public to actually witness restoration as it unfolds. A new Pittsburg BART station is less than 10 miles away and rail tracks used by Amtrak traverse the site. The combination of Big Break and the Marsh Creek Watershed create a distinct and compelling project area. The project footprint is in the GIS system for Delta projects at UC Davis.

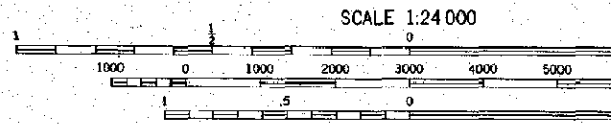
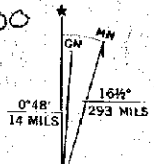
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(CLAYTON)
1959 11/15/59

Published by the Geological Survey
OAA
by methods from aerial
field checked 1975. Map edited 1978
Grid ticks: California coordinate.
(normal conic)
Base Mercator grid ticks.

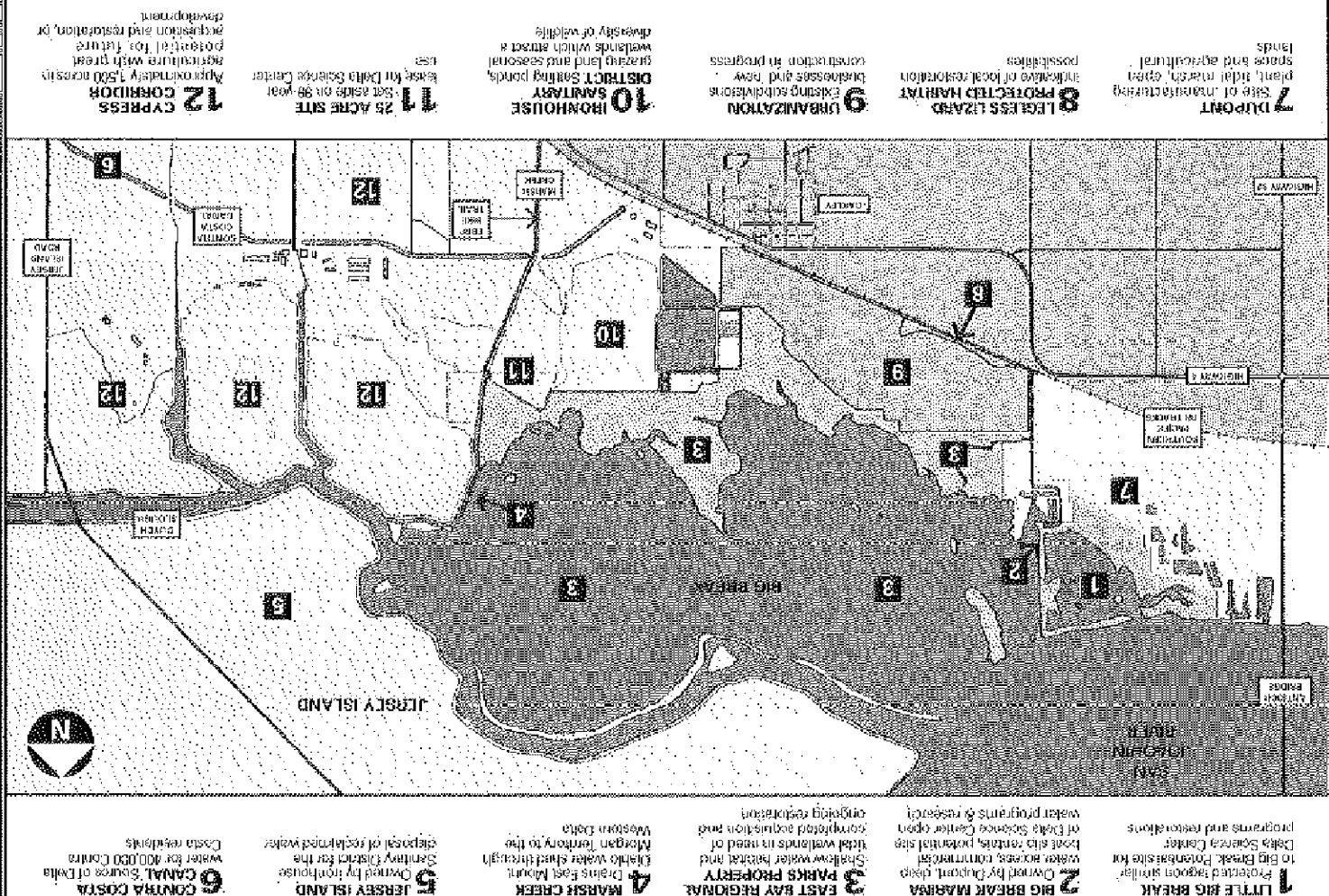
Big Break
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CONTOUR INTERVAL 20 AND 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

1-015115

FIG 1: EXISTING CONDITIONS AT BIG BREAK & VICINITY





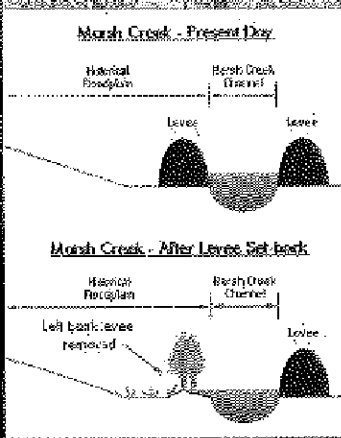
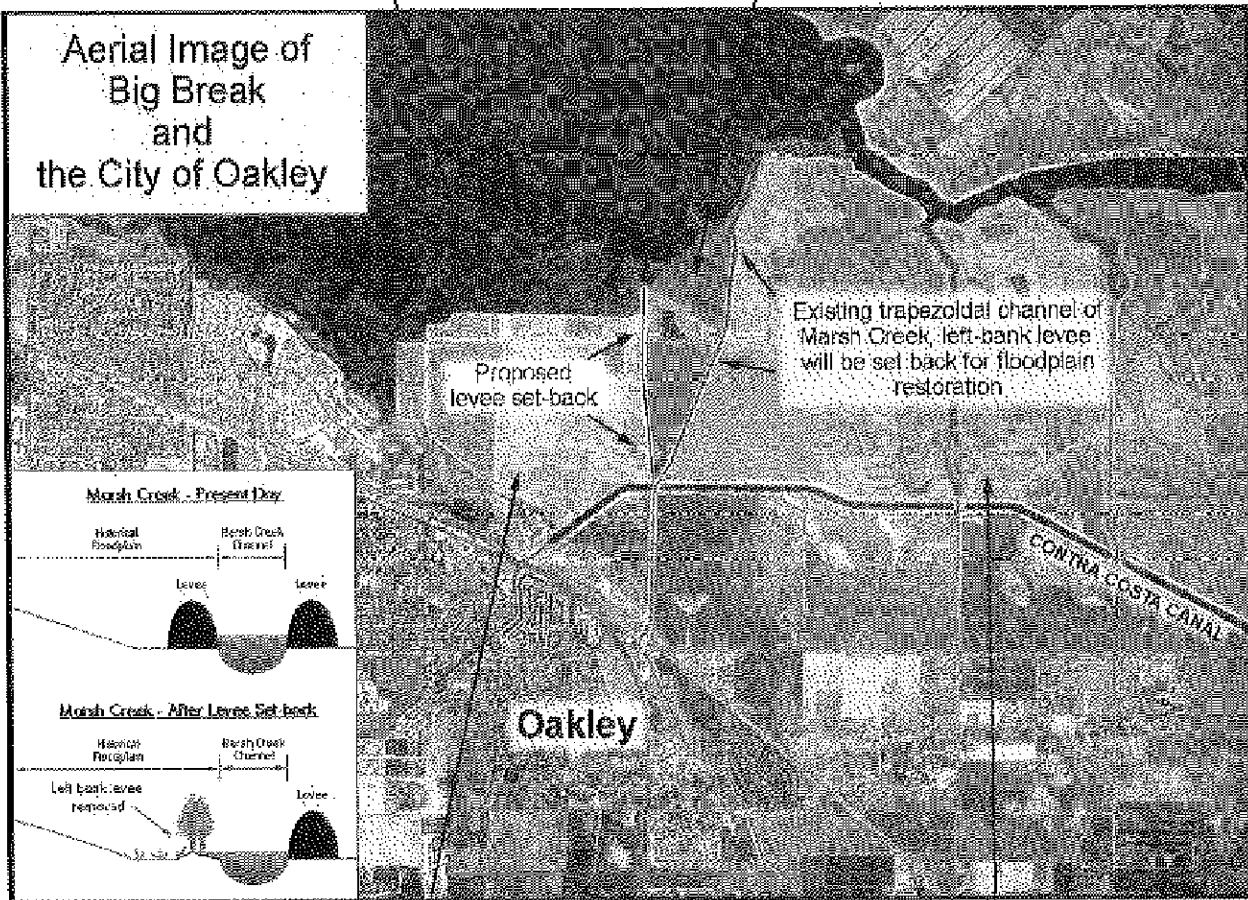
- | | | | |
|--|--|--|---|
| <p>1. LAKEVIEW PROPERTY
Acquisition adds 888 acres of protected shallow water habitat, tidal wetlands and riparian corridors to increase Bay Delta Regional Shoreline to 1,758 acres.</p> | <p>2. BIG BREAK STEWARDSHIP
Plan future as a resource. Inventory of Bay Break hydrologic and geomorphic mapping, a restoration plan for growing emergent sediments and extending existing tidal marsh habitat, and an adaptive management research program for restoring shallow water habitat.</p> | <p>3. PUBLIC ACCESS & EDUCATION
Plan, acquire and develop the incremental developments to create a demonstration project showcasing the Bay Delta estuary and the FCRs to restore it. Requires coordination with all proposed projects to protect the resource while activating public participation.</p> | <p>4. BRASH CREEK RESTORATION
It is a 40-year-old design on an existing project site of a deep channel for a levee, silted up along the creek's confluence with the Delta. Brash is restoring the natural floodplain while creating excellent habitat for native fish and other species.</p> |
|--|--|--|---|

FIG 2: PROPOSED PROJECTS TO ACQUIRE, RESTORE AND INTERPRET BIG BREAK IN THE WESTERN DELTA

Existing Big Break marsh

Marsh and floodplain currently disconnected from channel. Vegetation will be restored to channel marsh riparian and floodplain habitat.

Aerial Image of Big Break and the City of Oakley



Opportunity for improved management of seasonal wetlands on Ironhouse Sanitation District lands

Opportunity for tidal marsh restoration or new subdivisions

ECOLOGICAL/BIOLOGICAL BENEFITS

Objectives

The primary objective is to establish a diverse, long-term stewardship of Big Break and the Marsh Creek watershed in the western Delta. A pro-active consortium of Delta interests is willing, with the support of CALFED, to work its members and raise private funds to promote ecosystem restoration in perpetuity. With a modicum of success, the effort will spread and positively impact surrounding geographies, including projects on Sherman, Jersey, Twitchell, and Bradford islands, and Holland, Franks and Webb tracts, integrating and interpreting restoration and stewardship throughout the western Delta.

For the immediate future, our planning area provides the opportunity to advance a broad range of CALFED objectives, including:

- Restoration of Natural Flood Plain and Flood Processes associated with lower Marsh Creek;
- Restoration or enhancement of Bay-Delta Aquatic Foodweb due to increased primary production and feeding in restored tidal perennial aquatic habitat and emergent islands;
- Restoration of Tidal Perennial Aquatic Habitat associated with tidal marsh and shallow water habitat restoration;
- Enhancement of Nontidal Perennial Aquatic Habitat associated with reclaimed water in Ironhouse Sanitary District Ponds;
- Restoration and enhancement of Delta Sloughs associated with Dutch Slough, lower Marsh Creek and Lauritzen property;
- Restoration of Seasonal Wetlands on perimeter of restored tidal marsh and emergent island habitat;
- Restoration of Riparian and Riverine Aquatic Habitats along Marsh Creek and breached levees on Dutch Slough, and the creation of peninsulas on the margins of Big Break;
- Restoration of Oak Woodland Habitat along Marsh Creek and on the Lauritzen property;
- Potential restoration of Inland Dune Scrub Habitat on relict dune features on Ironhouse Sanitary District lands;
- Potential restoration of perennial Grassland associated with uplands bordering marsh restoration sites; and
- Potential enhancement of fresh Emergent Wetland associated with existing and new sanitary district ponds.

Progress on these habitat and natural process objectives will benefit a number of CALFED species objectives. In addition to the numerous priority fish species already identified, the project will benefit western pond turtle, California black rail and the legless lizard—which are already present on the site—and potentially giant garter snake. With proper design, the project will also benefit greater sandhill crane, shorebird and wading bird guilds, waterfowl, and Swainsons' hawk, all of which currently use the site.

The project will also advance the objective of the AFRP by restoring tidal marsh and other estuarine habitats that have been identified, at least in other estuaries, as important rearing areas for juvenile anadromous fish. Juvenile salmon have been documented in Marsh Creek (Slotton, 1998).

Linkages

To our knowledge, no projects along the Big Break shoreline or in the Marsh Creek watershed have been funded by CALFED agencies.

This project will be integrated into a restoration strategy for Marsh Creek that is described in a separate proposal titled: the "Marsh Creek Watershed Science Program." This program is a high quality data collection and analysis effort throughout the entire watershed from the headwaters in Mt. Diablo State Park and Morgan Territory Regional Preserve through its drainage into the western Delta at Big Break. Combined, these proposals provide long-term stewardship across a wide ecological zone. The Delta Science Center is also working with the landowners of the last remaining agricultural zone (Cypress Corridor) on Big Break regarding future acquisition and potential for restoring over 1,500 acres to tidal marsh and riparian habitat. The landowners are willing sellers and are represented on The Delta Science Center's board of directors by the Emerson Dairy. The ERP identifies the strategic objective to "halt as much as is possible the conversion of agricultural land to urban and suburban uses in areas adjacent to restored aquatic, riparian, and wetland habitats and manage these lands in ways that are favorable to birds and other wildlife" (Goal 4, objective 4 of the ERP, page 103). The independent scientific review panel also concluded that a successful program needs buy-in from the public (page 30).

The Marsh Creek flood plain could serve as an important source of splittail recruitment. Our proposal for levee setbacks and restoration of marsh and flood plain at the mouth of Marsh Creek would likely provide suitable spawning habitat for the endangered Sacramento splittail (ERP pg. 207) and excellent rearing opportunities for juvenile salmonids (ERP 211).

The opportunities for restoration of tidal perennial aquatic habitat (ERP goal 4, objective 3; page. 103) at Big Break is unparalleled in the Delta. The proposal will investigate opportunities "to test and monitor techniques for returning subsided Delta islands to shallow water and marsh habitats" (pg. 42 of the Strategic Plan). If this proposal is funded, EBRPD will own all of Big Break and PWA will design an innovative plan to restore tidal marsh and increase sediment deposition, by configuring clean dredged spoils that reduce wind and wave fetch. This strategy of creating tidal marsh in open water is described as a key opportunity in the ERP strategic plan and identified as a focused CALFED action. Lands on both sides of Marsh Creek and at the Lauritzen property are at suitable elevations for the creation of 500 to 1,000 acres of new tidal perennial aquatic habitat. Combined, these opportunities within Big Break are the largest single opportunity for creating tidal marsh in the western Delta.

The ERP strategic plan recommended developing "large-scale pilot projects that examine the relationship between variable salinity and the maintenance of native species in the Delta, especially in shallow-water habitats" (Strategic plan pg. 42). Outside of Cession Marsh, Big Break may be the only place to do this. Furthermore, the mouth of Marsh Creek is the only site in the Delta

where existing and potential tidal marsh habitat will be augmented with a significant natural sediment source. Marsh Creek, like other Coast Range tributaries, carries a large sediment load which will increase prospects for marsh restoration and recovery over time.

This project presents a truly unique opportunity to restore a mosaic of tidal marsh, delta sloughs (ERP pg. 120), and flood plains (ERP 83) and processes at the confluence of Big Break and Marsh Creek. Marsh Creek is currently a denuded, trapezoidal channel subject to tidal flows. By setting back the levee, we will gain approximately 20 acres of mixed riparian forest, 20 acres of marsh, and 10 acres of tidal slough. Despite a small upstream reservoir, Marsh Creek is still subject to a natural peak flow regime which will allow the stream to rapidly heal itself.

Finally, look to the improved management of seasonal wetlands on Ironhouse lands (pg. 141) adjacent to this rich mosaic of existing and restored tidal marsh, riparian habitat, and delta sloughs. These seasonal wetlands in combination with adjacent uplands, marsh and open water, would provide habitat for a plethora of ERP target species, including western pond turtle (pg. 334), shorebirds and wading birds (pg. 354), waterfowl (pg. 358), neotropical migratory bird guilds (pg. 362) and upland game including Tule Elk (pg. 365).

System-Wide Ecosystem Benefits

Opportunities for the restoration of tidal marsh in and along Big Break are complemented by a separate proposal titled the "Marsh Creek Watershed Science Program." This proposed project is for the management and protection of the Marsh Creek sediment supply, creating a positive synergy to restore connectivity between habitats in the Delta and upper watershed.

The Delta Science Center is also working closely with the City of Brentwood as a consultant to assist in the design of a tertiary water treatment plant meeting a 2.2 MPN/100ml coliform count for the creation of shallow water habitat and creek discharge 3.6 miles upstream of the Delta at Big Break.

Compatibility with Non-Ecosystem Objectives

The project provides a significant levee setback which provides new flood plain habitat and improved levee system integrity with non structural flood control benefits along Marsh Creek on Ironhouse Sanitary District property. The project also analyzes the entire southern shoreline of Big Break to identify multiple opportunities for removing antiquated levees no longer used for agriculture without risk to current land use and associated economic activities. The proposed acquisition of the Lauritzen property is a specific opportunity to integrate non structural flood control on abandoned asparagus farms with public access and education designed to complement and showcase flood plain restoration.

The project will only improve Delta water quality and habitats. There are no conflicts with other CALFED objectives. All associated third parties, including the City of Brentwood and the newly incorporated City of Oakley, enthusiastically endorse science center projects for the benefit of their citizens, economically, environmentally and culturally.

TECHNICAL FEASIBILITY AND TIMING

No permits on environmental review will be required for tasks in this phase of the project, but all participants will work closely with the Delta Protection Commission, Contra Costa County, the Regional Water Quality Control Board, the Cities of Brentwood and Oakley, the State Lands Commission and other agencies with jurisdiction to anticipate all environmental compliance and permitting requirements during subsequent phases of the project.

We do not believe or know of any other good alternatives to the tasks and actions outlined in this Big Break proposal.

There are three implementation issues which we need to address: 1) we must close the option by purchasing the Lauritzen property or possibly lose the property or at the very least sustain a 6% increase per year of the purchase price, if the owners are willing to extend the option; 2) we must work closely with Ironhouse Sanitary District to design the levee setback on Marsh Creek in a manner that does not interfere with their pipeline and pump that transfers reclaimed water from the mainland to Jersey Island; and 3) we must work closely with Contra Costa County Flood Control to ensure that our project complies with the County's "New Approach to Flood Control Issues" presented at the April 1999 Contra Costa County Creek and Watershed Symposium.

MONITORING AND DATA COLLECTION METHODOLOGY

This project is focused on collecting and evaluating data necessary to make informed decisions about the future management and restoration of Big Break and the Marsh Creek watershed. Particular consideration will be given to the potential for expanding fresh to brackish tidal marsh and the creation of emergent shallow-water islands in currently-subsided areas. Shallow-water restoration/research objectives will be refined by Phillip Williams and Associates (PWA) and a survey of historic maps will be crucial to better understand the natural processes at the site.

Aerial photogrammetry will be used to prepare a basemap of the site, including topography, land use, and important structures. Site reconnaissance and ground surveys will support biological surveys to evaluate the extent of existing wetland areas, the presence of endangered species, and the overall baseline biological condition of the site. PWA will conduct hydrologic and hydraulic computer analysis of Marsh Creek to characterize current flood conditions along the project reach. Current geomorphic conditions will be mapped and recorded on the existing conditions basemap. Channel-forming processes will be analyzed to distinguish between zones of primarily fluvial or tidal influence.

A monitoring plan for the Marsh Creek and Big Break restoration site will be developed. The monitoring plan will include biological, hydrologic and geomorphic monitoring. In addition to tracking permit compliance, monitoring will be integrated with the operations and maintenance for the site. In this way, management of the site will be adaptive, allowing changes to the management regime based on monitoring results.

Specific opportunities throughout Big Break may include clean dredge material from the Stockton Shipping Channel, excavated material from the Marsh Creek flood plain restoration project and physical opportunities due to the low wind-wave action in the sheltered geometry of Big Break. These opportunities will prompt a variety of restoration and data gathering approaches for the purposes of research and monitoring at Big Break and analogous restoration sites in the Delta.

Table 2. Monitoring and Data Collection Information

Biological/Ecological Objectives: 1) to acquire 668 acres of Big Break in the western Delta and restore its potential as shallow water habitat with emergent islands and peninsulas, restored flood plains and riparian corridors; 2) to develop a stewardship/restoration and education program across 2,000 plus acres of Big Break and the Marsh Creek watershed which drains it; and 3) to convert a minimum of 2,700 lineal feet of restored flood plain by a levee setback to re-contour lower Marsh Creek from the Contra Costa Canal to its confluence with Big Break. The primary hypothesis/questions we must evaluate include:			
Hypothesis Questions to be Evaluated	Monitoring Parameter(s) and Data Collection Approach	Data Evaluation Approach	Comments/Data Priority
How wide should a restored flood plain in Marsh Creek be?	historical photo and map analysis; reference sites	compare and contrast channel dimensions & forms	I
Can existing levees on south shore of Big Break be safely removed to restore tidal marsh?	evaluate tidal elevations, land surface elevations and historic weather influences	compare and contrast land and water surface elevations	I
Can "clean" fill material from flood control or shipping channels be cost effective for emergent island restoration and accretion?	availability of "clean" fill material, wind and wave erosion patterns, tidal surface elevations	model wave action, erosion and sediment depositing	I

LOCAL INVOLVEMENT

Joseph Canciamilla, Chairman of the Contra Costa County Board of Supervisors, has been notified of this project. Mr. Canciamilla is also the former Chairman of The Delta Science Center and remains a strong supporter and advocate. All of the County supervisors know and support the work of The Delta Science Center and East Bay Regional Park District on behalf of Big Break. The City of Brentwood, and the newly incorporated City of Oakley, are also avid supporters and wrote letters on our behalf for the related scientist/citizen program "The Marsh Creek Watershed Science Program." Oakley has made the science center program a high priority for their new city charter, and has assembled state and local leaders for a City Council workshop on The Delta Science Center for May 11, 1999. The list of science center advocates is huge and active participation matches the enthusiasm. A 1998 CALFED funded program for an interactive web site is connecting every school—primary through university—to the development of a Student Big Break Baseline—Brentwood's Marsh Creek Advisory Committee, dormant for several years, is reconvening to capture the new creek energy. Los Medanos College is devoting Biology 25 to the monitoring of Marsh Creek. California State University at Hayward continues to train graduate students in Big Break and represents the science center at public events. A full-scale education synergy is building.

The local Soil Conservation District is promoting our efforts with adjacent landowners, including Stan Emerson, a district board member, influential dairy owner and Delta Science Center board member, to build bridges with historic agriculture interests in Big Break and the Marsh Creek watershed. The Alameda-Contra Costa Biodiversity Working Group is also invested in our projects, including its signatory agencies of Alameda and Contra Costa counties, Contra Costa Water District, Department of Fish and Game, East Bay Regional Park District, and East Bay Municipal Utility District.

Local industry, includes Tosco, Shell, duPont, PG&E and Dow as financial supporters of our efforts in Big Break and we remain an important project for Mt. Diablo Audubon and the Delta Chapter of the Sierra Club. We have forged an alliance of business, government, industry and enviros. We have received only support, and have not identified any negative third party impacts for our projects.

COST

The budget includes a number of large service, material and acquisition costs. Under task 1 a total of \$757,400 is allocated to acquisition of the Lauritzen Parcel that encompasses the Western half of Big Break. Of this total, EBRPD will cost share \$557,400.

Task 2 includes \$75,000 contribution of up to 50 acres from EBRPD and Ironhouse Sanitary District for restoration of riparian land along Marsh Creek. Task 1 also includes \$75,000 of service and material contracts to pay Phillip Williams and Associates for surveys, engineering, and hydrologic analysis to design a levee set back and restoration project on lower Marsh Creek.

Task 3 includes a \$100,000 service contract to retain Phillip Williams and Associates to develop a conceptual design for restoring tidal Marsh Habitat in Big Break's open water areas -- a solicited focused action. PWA marsh analysis work with the University of Washington that is being funded by CALFED indicate that breached Delta Islands such as Big Break do not accrete vertically over time because wind action prevents settling of suspended sediments. PWA will design and model a number of peninsular and berm formations to minimize wave fetch and maximize sediment deposition. The berms and peninsulas will create significant marsh and edge habitat while also accelerating the natural accretion and restoration of tidal marshes.

Under task 4, a \$60,000 service contract will be used to retain a landscape architecture firm to design an environmentally sensible education and access plan along the Lauritzen property. A \$35,000 materials and acquisition contract will be utilized to acquire temporary education facilities for public outreach and field classes at the property.

Table 3A: Sample Total Budget Summary

Task #	Total Cost	Total after Cost Share
1: Acquisition of Lauritzen Parcel (western Big Break)	\$770,525	\$200,000
2. Design flood plain restoration project at mouth of Marsh Creek and obtain permits	165,138	85,763
3. Develop a stewardship and restoration plan for Big Break	193,313	174,613
4. Public education and access plan	151,875	75,938
GRAND TOTAL	\$1,280,850	\$563,313

TABLE 3B: DETAILED BUDGET

	Direct Labor Hours	Direct Salary and Benefits	Service Contracts, Dollars	Material and Acquisition Contracts, Dollars	Misc. and Other Direct Costs, Dollars	Overhead and Indirect Costs, \$	Total Cost \$	Total w/ Cost Share
Phase 1: Initiate Project and Establish Base Line						0	0	
1. Acquisition of Lauritzen Parcel (western Big Break)						0	0	
a. acquire fee title				757,400		0	757,400	200,000
b. legal and other transaction services	300	10,500				2,625	13,125	0
f. task management: work and cost oversight, reporting	40	1,400				350	1,750	1,750
							Task 1 Sub-total	770,525
								200,000
2. Design flood plain restoration project at mouth of Marsh Creek and obtain permits						0		
a. finalize land lease	120	4,200		75,000			79,200	4,200
a. site surveys and analysis	5	175	5,000	10,000		44	15,219	15,219
b. alternative design analysis	40	1,400	20,000			350	21,750	21,750
c. design, hydrologic evaluation, cost estimates	5	175	40,000			44	40,219	40,219
d. Permitting	200	7,000				1,750	8,750	4,375
f. task management: work and cost oversight, reporting	150	5,250					5,250	5,250 2,625
							Task 4 Sub-total	165,138
								85,763
3. Develop a stewardship and restoration plan for Big Break								
a. Collect and compile existing information	120	4,200				1,050	5,250	4,463
b. Develop GIS data base	300	10,500				2,625	13,125	6,563
c. map and describe existing conditions	200	7,000				1,750	8,750	7,438
d. Organize community outreach element	300	10,500				2,625	13,125	9,844
e. assemble existing conditions and constraints report	250	8,750				2,188	10,938	9,844
f. analyze restoration opportunities along shoreline	200	7,000				1,750	8,750	7,438
g. develop conceptual plan for depositing clean fill for marsh restoration in Big Break	100	3,500	100,000			875	104,375	104,375
h. develop a base line monitoring plan	120	4,200	15,000			1,050	20,250	17,213
i. stewardship and restoration strategy recommendations report.	200	7,000				1,750	8,750	7,438
f. task management: work and cost oversight, reporting	250	8,750				2,188	10,938	9,297
							Task 3 Sub-total	193,313
								174,613
4. Public education and access plan						0	0	0
a. goals and audience analysis	100	3,500				875	4,375	2,188
b. curriculum design	400	14,000				3,500	17,500	8,750
c. conceptual infrastructure design and analysis	200	7,000	60,000			1,750	68,750	34,375
d. open temporary science site	300	10,500				2,625	13,125	6,563
e. initiate interim programs	300	10,500		35,000		2,625	48,125	24,063
f. task management: work and cost oversight, reporting	150	5,250				1,313	6,563	3,281
							Task 4 Sub-total	151,875
								75,938
							GRAND TOTAL	1,280,850
								536,313
								0.42

Table 4: Sample of Quarterly Budget (with/Cost Share)

Task	Quarterly Budget Oct-Dec 99	Quarterly Budget Jan-Mar 00	Quarterly Budget Apr-Jun 00	Quarterly Budget Jul-Sep 00	Quarterly Budget Oct-Dec 00	Total Budget
Task 1	200,000					200,000
Task 2	25,729	42,882	17,153			85,763
Task 3	43,653	43,653	43,653	43,653		174,613
Task 4	18,985	18,985	18,985	18,985	18,985	75,938
Total	288,367	105,519	79,790	62,638	18,985	536,314

COST SHARING

This project's applicants are prepared to contribute a 60 percent cost share. The East Bay Regional Park District will contribute \$557,000 in direct funds for the acquisition of the Lauritzen parcel and a significant in-kind contribution for acquisition administration, public outreach, and project management. The Delta Science Center will contribute \$75,938, a fifty percent cost share, to fund the education component of this project associated with task 4. The Natural Heritage Institute will contribute significant in-kind services as well.

APPLICANT QUALIFICATIONS

The Delta Science Center has a well-established reputation in Contra Costa County. Multiple regional organizations and agencies are represented on the Board, and the DSC has developed a strong program working with government, industry, education and environmental groups. *Stephen Barbata* serves as the Executive Director. Mr. Barbata would serve as fiscal agent and project director for this project. He brings twenty-five years of experience in the design, building and funding of educational institutions. In his roles as Project Manager/Director and Executive Director, he successfully developed the Coyote Point Museum for Environmental Education in San Mateo; *Communities and Ecosystems*, the permanent natural sciences galleries of the Oakland Museum; *Wild California*, a major renovation of the American Hall at the California Academy of Sciences, and most recently, the Lindsay Wildlife Museum in Walnut Creek, where he was also responsible for the successful completion of its \$8 million capital campaign.

Bob Doyle has twenty-four years' experience with the East Bay Regional Park District and for the past thirteen years has supervised and managed the land acquisition department. As Assistant General Manager for Advanced Planning, Land Acquisition and Regional Trails, Bob manages one of the largest land and trail dedication programs in California and coordinates land use development decisions with 37 cities and two counties. He supervises a 16-member team of right-of-way professionals and advance planning staff, and directs real estate and environmental consultants, engineers, appraisers and attorneys. Bob also has a distinguished career as a long-term president of Save Mt. Diablo, the leading open space advocate in Contra Costa County. His nonprofit and professional life are well documented, highlighting his role as a co-project manager for this project.

Greg Thomas is a specialist in natural resources law and management institutions and the CEO of the *Natural Heritage Institute*, a non-profit environmental law and technical consulting firm. Mr. Thomas has extensive experience in managing multi-disciplinary teams. The NHI will serve as a special consultant to DSC and provide project management and planning services. He will be assisted in the day-to-day management of the project by *David Fullerton*, *John Cain* and *Mark Wolfe*. Mr. Fullerton has two graduate degrees in science and many years of experience working toward sound management and restoration of water resources. Mr. Cain has a graduate degree in environmental planning from UC Berkeley and has over eight years of research and management experience in the realm of aquatic habitat restoration. Mark Wolfe holds graduate degrees in law and city and regional planning, and will assist in the planning components of the project.

Philip Williams & Associates, Ltd. (PWA), *Philip B. Williams, Ph.D., P.E., President*. PWA has completed over 400 wetland restoration plans and analysis of tidal, seasonal, and riparian wetlands and has conducted long-term monitoring of several tidal wetland restoration sites in the San Francisco Bay Estuary in the past 10 years. PWA's design experience includes the recently completed Sonoma Baylands Tidal Wetland restoration project. PWA is part of a team with the University of Washington that received CALFED funding to conduct hydrologic monitoring and analysis to predict the evolution of ecological functions of restored Delta wetlands and has assessed breached-dike restoration potential for juvenile Pacific Salmon habitat in two estuaries in Oregon. Dr. Williams has pioneered practical technical analysis of tidal marsh restoration and

management, coastal wetland hydrology and hydraulics, flood and riparian management, reservoir operation, harbor maintenance dredging, watershed sediment yield, groundwater management, and the impacts of climate change.

Hanson Environmental Inc. has provided environmental consulting services, specializing in fishery issues, to industrial, governmental, and municipal clients since 1991. The firm provides services encompassing a range of specialized senior-level consulting applications involving emphasis in environmental regulatory compliance, resource management, and expert witness testimony. The firm also provides field sample collection and analysis related to fisheries and water quality issues. The organization and operations of Hanson Environmental, Inc. are based on a management philosophy which emphasizes a high professional standard of performance, excellent long-term client relationships, and consistent delivery on technical, schedule, and budget commitments.

Hanson Environmental consultants are primarily applied scientists with an emphasis in aquatic (fishery) biology and quantitative science. Our areas of expertise are: *Dr. Charles Hanson* has served on the USFWS Native Fish Recovery Team and contributed directly to a number of fishery protection and enhancement programs involving: USFWS, MNFS, USEPA, USBR, CDF and G, and other agencies.

Bill Wells of William S. Wells has over 20 years' experience in the planning and design of educational institutions, with educational degrees in journalism and environmental design. Planning clients include the California Historical Society, the National Maritime Museum, Rancho Los Alamitos and the Telluride Historical Society. Design projects include the Coyote Point Museum for Environmental Education, the Lindsay Museum, the Oakland Museum halls of California History and Natural Science, the Humphrey Forum in Minneapolis, the Nicollet County Historical Society in Saint Peter, Minnesota, and the Hayden Planetarium in New York.

The DSC also plans to contract with *Ron Lutsko, Jr.*, and *Montgomery Watson*. Ron Lutsko is a widely acclaimed and honored landscape designer respected for his knowledge of California botany and horticulture. He will assist with the schematic access design and advise on restoration of native plant communities. Montgomery Watson is the wastewater treatment firm of record for the Ironhouse Sanitary District and will advise on the use of reclaimed water in habitat restoration.

COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The terms and conditions are agreeable to the applicant. Required forms are attached.

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME

The Delta Science Center at Big Break

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Stephen Barbata

DATE EXECUTED

April 16, 1999

EXECUTED IN THE COUNTY OF

Contra Costa

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

Executive Director

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

The Delta Science Center at Big Break

**STANDARD CLAUSES --
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER**

NOTICE TO ALL BIDDERS:

Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

_____ Yes* x No

*Attach a copy of your certification approval letter.

April 15, 1999

Joseph Canciamilla
Supervisor District 5
300 E. Leland Rd., Suite 100
Pittsburg, CA 94565

Dear Joe:

As a former Chairman and continued supporter of The Delta Science Center, we want you to know that we are pursuing two CALFED projects with which you are very familiar. One is the "Marsh Creek Watershed Science Program" and the other is "The Delta Science Center at Big Break: A Unique Opportunity for Restoration, Research and Education."

We look forward to your continued support on these projects and will keep you advised of their progress.

Sincerely,



Stephen Barbata
Executive Director

cc: Contra Costa County Planning Commission

THE DELTA
SCIENCE CENTER
At Big Break

April 15, 1999

Margit Aramburu, E.D.
Delta Protection Commission
P.O. Box 530
Walnut Grove, CA 95690

Dear Margit,

John Cain of the National Heritage Institute and I are pleased to bring to your attention that we are pursuing two CALFED projects with which you are very familiar. One is the "Marsh Creek Watershed Science Program" and the other is "The Delta Science Center at Big Break: A Unique Opportunity for Restoration, Research and Education."

We look forward to working with you on these projects.

Sincerely,



Stephen Barbata
Executive Director

THE DELTA
SCIENCE CENTER
At Big Break

LETTERS OF SUPPORT

- 18 -

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I-015136

REGIONAL PARKS

EAST BAY REGIONAL PARK DISTRICT



April 15, 1999

Mr. Lester Snow
CALFED
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Subject: EBRPD/Delta Science Center at Big Break Shoreline - Joint CALFED Proposal

Dear Mr. Snow:

On behalf of the East Bay Regional Park District ("EBRPD"), I am very pleased and excited to propose an environmental partnership and joint application to CALFED for the Delta Science Center at Big Break Shoreline in Oakley, Contra Costa County. We believe that the work we have done within the community, and particularly in cooperation with the Delta Science Center and its partners, will have tremendous benefits for the long-term restoration and environmental enhancement within the western Delta.

As you are aware, the eastern portions of Contra Costa County are experiencing some of the fastest urban growth in the entire state. It is critical at this time that efforts are made to acquire, preserve, restore, and enhance Delta wetland and upland habitats as a buffer to this growth. We also believe that it is critically important to obtain long-term public support by including current and future generations in education--scientific research and restoration programs so that the public will continue to embrace and understand the significance of the Delta, Delta agriculture, Delta water quality, and environmental issues. This application meets all of those goals.

One of the elements of this joint application includes research and design proposals necessary to begin to study the ninety-square-mile Marsh Creek watershed which empties into the Delta at Big Break. This proposal includes recreating a natural delta at the mouth of Marsh Creek by removal of portions of the existing levies. We intend to work with the DSC, County Flood Control, the City of Oakley, and the Ironhouse Sanitary District to design a successful enhancement.

A major part of this proposal is to complete the acquisition of nearly 2,000 acres of wetland habitat for the purposes of restoration and ecological protection and research. The Park District has already expended over \$1,000,000.00 to purchase over 1,000 acres to date and currently has under option an additional 688 acres including upland as well as wetland. We have already received approval from the California Department of Parks & Recreation for a grant to assist in this acquisition and the CALFED funding request, along with EBRPD funds, will complete this important goal.

BOARD OF DIRECTORS

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Ward 8

Carol Savarin
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Ted Rüdke
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Doug Siden
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Ward 1

Pat O'Brien
General Manager

Mr. Lester Snow
April 15, 1999
Page 2

Finally, we are very pleased to join directly with the Delta Science Center as a broad base community coalition of educators, scientists, and agencies. Their efforts to provide on-site research, public education, and environmental programs are essential to any long-term success.

I would like to give one example of such community based efforts:

The Park District has now developed approximately six miles of trail along the Marsh Creek levies. Marsh Creek is less than ideal habitat at this time. But, within a year of opening this trail to the public, many community groups and clubs immediately began to sponsor clean-up of the creek, ideas for native vegetation planting, and public education about the importance of the creek and its environment.

We believe that as part of this joint application and environmental stewardship with education effort, we will continue to develop this important public support which they will embrace and challenge themselves to do additional restoration projects along the Delta Shoreline and within the communities along Marsh Creek. This is just yet one example of the type of success that we can obtain working cooperatively with other organizations in a community based effort with CALFED support.

We hope you will act favorably on this important acquisition and believe that CALFED will receive far greater benefits from such a multi-faceted effort with such strong community based support. We look forward to your consideration.

Sincerely,



Pat O'Brien
General Manager

cc: Steve Barbata, Delta Science Center
EBRPD Board of Directors
Board of Supervisors
City of Oakley
Delta Protection Commission
Coastal Conservancy
State Lands Commission
California Department of Water Resources
California Department of Fish & Game
Bureau of Reclamation

FAX
(510) 625-0169



IRONHOUSE SANITARY DISTRICT
450 Walnut Meadows Drive • P.O. Box 1105 • Oakley, CA 94561

Telephone
(510) 625-2279

April 12, 1999

To Whom It May Concern:

Ironhouse Sanitary District (ISD) supports the programs of The Delta Science Center (DSC) and the larger efforts to appropriately repair and restore Delta systems and functions. In support of these efforts, the ISD has already dedicated approximately 23 acres of its land holdings for use by the DSC. If the DSC wants to develop these acres as a Marsh Creek restoration program, we are willing to work with them on the development of a plan that extends from the intersection of Marsh Creek and the Contra Costa Canal to the confluence of Marsh Creek and Big Break. The project must be properly engineered and permitted, and not interfere with ISD pipelines and pumps transferring reclaimed water to Jersey Island. We look forward to working on this worthwhile project.

Sincerely Yours,

David Bauer
General Manager

bd:wp60
sig/dave/dsc.ltr